



## U.S. Fish & Wildlife Service

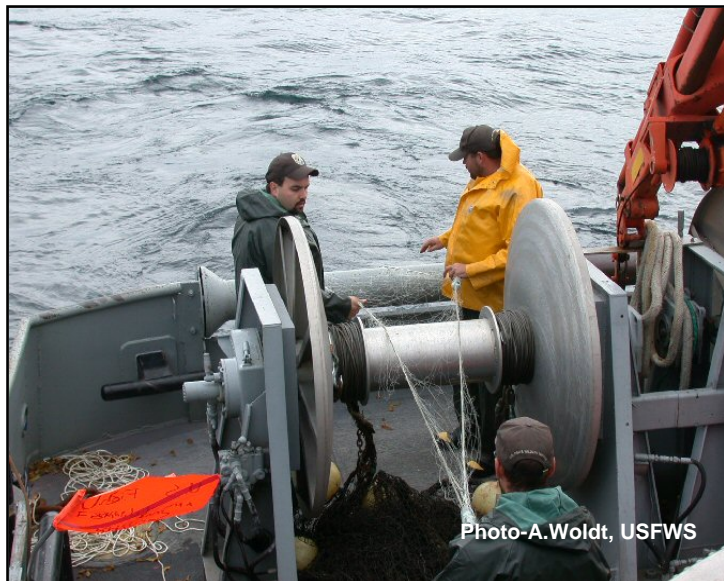
# FY 2006 Alpena FRO Accomplishment Summary

## Aquatic Species Conservation and Management

The Fisheries Program maintains and implements a comprehensive set of tools and activities to conserve and manage self-sustaining populations of native fish and other aquatic resources. These tools and activities are linked to management and recovery plans that help achieve restoration and recovery goals, provide recreational benefits, and address Federal trust responsibilities. Sound science, effective partnerships, and careful planning and evaluation are integral to conservation and management efforts. The Alpena Fishery Resources Office in Alpena, Michigan is actively involved with aquatic species conservation and management in the Great Lakes. The accomplishments listed below highlight activities related to aquatic species conservation and management conducted in Fiscal Year 2006 (October 2005-September 2006).

### Lake Trout

## Alpena FRO Completes 2005 Mid-lake Lake Trout Survey



*Submitted by Aaron Woldt  
Fishery Biologist*

From October 13-14, 2005 staff from the Alpena Fishery Resources Office (FRO) completed a mid-lake lake trout spawning survey on Yankee Reef. The spawning survey at Six Fathom Bank was called off due to persistent inclement weather from October 15-31. Service staff involved included 1836 Treaty Unit Coordinator Aaron Woldt, Project Leader Jerry McClain, Fishery Biologist Adam Kowalski, and Fishery Biologist Scott Koproski. The 2005 survey was completed using the *M/V Togue* and crew—Captain Mike

Perry and Engineer Bob Bergstrom.

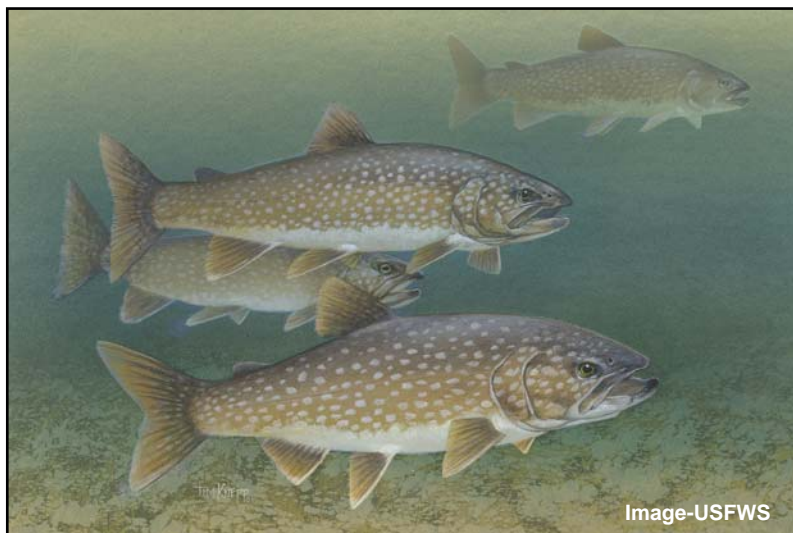
The goal of this survey is to collect abundance and biological data of spawning lake trout at index stations at two mid-lake reef complexes. The Service has stocked hundreds of thousands of lake trout yearlings on these 2 off-shore reefs in recent years. Two 400' long, large-mesh gill

nets were set on Yankee Reef for one night. All lake trout collected were measured for length, weighed, checked for lamprey wounds, sexed, assessed for maturity and visceral fat content, and sampled for ageing structures. Non-target fish species were worked up in a similar manner as well. The Alpena FRO has conducted the annual mid-lake lake trout spawning surveys on these reefs since 1993 with the *M/V Togue*.

In 2005, catch rates declined to an all time low at Yankee Reef. Total catch rates were down 67%, and catch rates at the north and south Yankee Reef sites were down 85% and 54% respectively compared to 2004 data. In 2004 catch rates were above 100 spawners/1,000 feet of net at both Yankee Reef sites, but in 2005 catch rates were 15 spawners/1,000 at the north site and 65 spawners/1,000 feet at the south site. 50 spawners/1000 feet of net is the mean abundance of spawners needed to support a viable, naturally reproducing lake trout population at other sites in the Great Lakes. Also, no unclipped, presumably wild adult lake trout were captured at Yankee Reef in 2005. This is a departure from 2004 when unclipped fish were sampled at each of the 5 mid-lake sites and 13% of Yankee Reef fish sampled were unclipped. Low 2005 catch rates at Yankee Reef may indicate decreases in spawner abundance on this important off shore complex; however, low 2005 catch rates may also be due to warmer than normal air and water temperatures that delayed arrival of spawning fish. Also due to poor weather, we fished the 2005 Yankee Reef survey 17 days earlier than in 2004. This difference in timing may account for some of the difference between 2004 and 2005.

Monitoring the abundance, stability, and quality of spawning lake trout populations on Six Fathom Bank and Yankee Reef is an important index of lake trout rehabilitation in Lake Huron. Six Fathom Bank and Yankee Reef were historically important lake trout spawning sites. This outcome is consistent with the Service's goal of maintaining self-sustaining populations of native fish species under the "Aquatic Species Conservation and Management" priority of the Fisheries Program Vision for the Future.

## Biologist Presents Results of Lake Trout Tagging Studies at the Region 3 Fish Culture Meeting



*Submitted by Aaron Woldt  
Fishery Biologist*

Fishery Biologist Aaron Woldt of the Alpena FRO attended the Region 3 Fish Culture meeting on December 13, 2005 and gave 2 presentations summarizing results from the Lake Huron Enhanced Quality at Release Study and the Lake Huron Lake Trout Movement Study.

The Enhanced Quality Study compared coded-wire-tag (CWT) returns of standard and

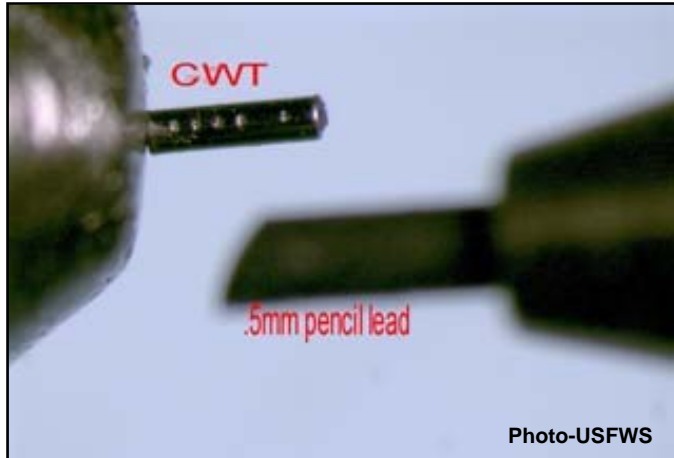
enhanced quality Lewis Lake strain lake trout yearlings reared at Jordan River National Fish Hatchery (NFH). For this study, paired plantings of standard quality (approx. 20 per pound) and enhanced quality (approx. 10 per pound) CWT lake trout were planted at each of four sites—Adams Point, Middle Island, Sturgeon Point, and Point Au Barques—in both 1996 (1995 year class) and 1998 (1997 year class). For each year class, approximately 30,000 standard quality and 30,000 enhanced quality lake trout yearlings were planted at each stocking site. Since 1996, these CWT lake trout have been captured in survey, commercial (gill-net and trap-net), and recreational gears. Woldt showed two types of analyses: 1) an effort independent analysis using Chi Square methods to analyze returns from all sources and 2) an effort dependent analysis using the Wilcoxon Test for Matched Pairs to analyze only survey caught fish. Both analyses used return data through 2004. Overall, the results of the Lake Huron study using either analysis technique showed that the enhanced quality fish survived significantly better than the standard quality fish, although significant differences in survival were not detected for each site and each year class using the Wilcoxon Test for Matched Pairs. In general, enhanced quality fish survived 62% better than the standard quality fish in Lake Huron.

The Lake Trout Movement Study compared CWT returns of lake trout yearlings stocked at 8 discrete movement sites across the lake. For this study, four year classes of lake trout (1991, 1993, 1995, 1997) were planted at Adams Point in MH-1, Middle Island in MH-2, Sturgeon Point in MH-3, and Point Au Barques in MH-4. Four additional year classes (2001, 2002, 2003, 2004) were subsequently stocked at each of the four original sites and a new site off Point Clark in Canadian waters. CWT lake trout have been stocked annually in the Drummond Island Refuge in MH-1 since 1985 and in the mid-lake Six Fathom Bank Refuge since from 1985 to 1998. Two year classes (1999, 2000) of CWT lake trout were also planted on Yankee Reef (mid-lake). Over the course of the study, there have been 1,276 returns of Adams Point fish, 1,076 returns of Middle Island fish, 1,088 returns of Sturgeon Point fish, 1,275 returns of Point Au Barques fish, 5,049 returns of Drummond Island fish, 5,443 returns of Six Fathom Bank fish, 68 returns of Yankee Reef fish, and 0 returns of Point Clark fish in agency surveys, commercial fishing gear, and the recreational fisheries (all gears combined). Woldt adjusted returns in survey gill nets and large mesh commercial gill nets for effort and estimated dispersal radii with standard errors and directions for the 4 nearshore stocking sites. Analysis of CWT returns in the refuge and mid-lake sites is incomplete at this time. On average, lake trout ranged  $21.8 \pm 1.4$  mi from Adams Point,  $27.6 \pm 1.8$  mi from Middle Island,  $32.3 \pm 2.2$  mi from Sturgeon Point, and  $24.0 \pm 2.9$  mi from Point Au Barques. In general lake trout moved large distances at early ages with some fish moving 100 miles or more by age 2 and generally moved in an onshore direction. Only fish from Adams Point (increasing) and Point Au Barques (decreasing) showed statistically significant trends in distance moved by fish age. Ongoing analyses includes fitting returns per effort at each site using an exponential sigmoid model to estimate lake trout home range, completing effort adjustments for the refuge and mid-lake sites, comparing movement patterns by strain for the Drummond Island and Six Fathom Bank sites, and a deeper analysis of differential movement by year class at each site.

Evaluating the survival and movement tendencies of hatchery produced lake trout allows managers to better support lake trout restoration efforts by providing the best quality hatchery product possible and better manage harvest of lake trout based on movement among management units. These outcomes are consistent with the Service's goal of building and

maintaining self-sustaining populations of native fish species under the “Aquatic Species Conservation and Management” priority of the Fisheries Program Vision for the Future.

## 2005 Coded-Wire-Tag Data Compiled



*Submitted by Aaron Woldt  
Fishery Biologist*

In January 2006, Fishery Biologist Aaron Woldt compiled lake trout coded-wire-tag (CWT) data for submission to the common Lake Huron Technical Committee (LHTC) CWT database. The common database was created in 1999 and includes lake trout CWT return data from 5 partner agencies (Michigan DNR, Chippewa/Ottawa Resource Authority (CORA), Ontario Ministry of Natural Resources, USGS Biological Resources

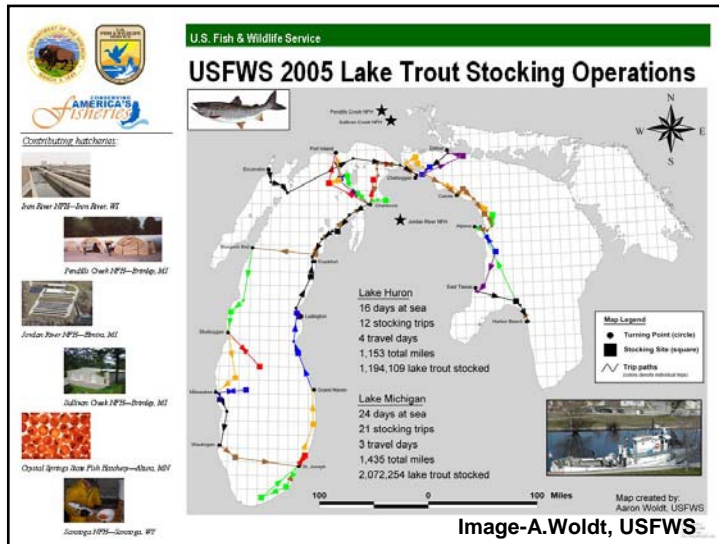
Division (BRD), and the Service). CWTs are microscopic tags placed in the snouts of hatchery lake trout prior to stocking. Tags are extracted from lake trout at the time of harvest and yield information such as hatchery of origin, year planted, fish age, and fish strain. The Alpena FRO captures CWT lake trout in its fishery independent lake whitefish surveys and its mid-lake lake trout surveys. Recreationally caught CWT lake trout sampled by Michigan DNR and CWT heads collected by CORA are also processed by the Alpena FRO.

Woldt summarized all Service and Michigan DNR sport CWT returns processed by the Alpena FRO in 2005. CWTs were extracted and read by Fishery Biologist Adam Kowalski. Woldt formatted all data to conform to common database standards developed by the LHTC and forwarded data to Scott Nelson of USGS BRD in Ann Arbor for inclusion in the common database. The common database is used by members of the LHTC to evaluate lake trout movement, strain survival, effects of quality at release on survival, and effectiveness of the northern and mid-lake refuges. Biologist Woldt will use the LHTC common database to update his analysis of Lake Huron lake trout movement and to update lake trout catch-at-age models used to set lake trout harvest limits in 1836 Treaty waters.

Capturing, processing, and analyzing lake trout CWT returns directly supports lake trout rehabilitation and influences setting of safe harvest levels by allowing agencies to assess lake trout movement patterns, differences in strain survival, effects of hatchery practices, and effectiveness of refuges. These outcomes are consistent with the Service’s goal of building and maintaining self-sustaining populations of native fish species while meeting the needs of tribal communities under the “Aquatic Species Conservation and Management” priority of the Fisheries Program Vision for the Future.



## Service Maps 2005 Stocking Trips of M/V Togue



Submitted by Aaron Woldt  
Fishery Biologist

At the request of Assistant Regional Director Gerry Jackson and Jordan River NFH Manager Rick Westerhof, Fishery Biologist Aaron Woldt of the Alpena FRO created a GIS based map of stocking trips made by the *M/V Togue* in 2005. The *M/V Togue*, based in Cheboygan, MI, is the Service's offshore stocking vessel used to plant yearling lake trout in US waters of lakes Huron and Michigan in support of interagency lake trout rehabilitation programs.

Biologist Woldt worked with Boat Captain Mike Perry to obtain coordinates for all waypoints and lake trout stocking locations used by the *M/V Togue* in both lakes Huron and Michigan. Woldt, working with Jordan River NFH Biologist Tim Smigielski, created a map showing *M/V Togue* trip paths, waypoints, stocking locations, total miles traveled, and total number of lake trout stocked in lakes Huron and Michigan. In 2005, the *M/V Togue* traveled 1,153 miles in Lake Huron stocking 1,194,109 yearling lake trout and 1,435 miles in Lake Michigan while planting 2,072,254 yearling lake trout. Woldt formatted a poster sized electronic version of this map on the Region 3 poster template and forwarded it to the Regional Office for printing. This map will be used by Region 3 personnel to educate public and Service employees regarding *M/V Togue* operations and will be displayed at the 2006 GLFC Combined Upper and Lower Lake Committee Meetings. A PowerPoint presentation showing trip by trip stocking operations was also prepared by Woldt and Smigielski and is available for use at outreach events.

This map of 2005 *M/V Togue* stocking trips will allow the Service to educate public and employees regarding the critical role the Service plays in lake trout rehabilitation efforts. This outcome is consistent with the Service's goal of implementing educational and outreach activities to educate public regarding Service activities under the "Aquatic Species Conservation and Management" and "Public Use" priorities of the Fisheries Program Vision for the Future.

## Service and State Present State of Lake Huron Lake Trout

Submitted by Aaron Woldt  
Fishery Biologist

Fishery Biologist Aaron Woldt of the Alpena FRO attended the Great Lakes Fishery Commission Combined Lake Committee Meeting from March 20-23, 2006 in Windsor, Ontario. Woldt, along with Ji He of MDNR, presented the state of Lake Huron lake trout in 2004 as a two part presentation. Dr. He's presentation described current lake trout population dynamics using

statistical-catch-at-age modeling and showed recent increases in biomass and spawning stock biomass in the main basin of Lake Huron due to improved sea lamprey control, continued stocking, and reduced fishery induced mortality since 2000. Woldt's presentation summarized fall, spawning survey data from nine sites around the lake relative to stated milestones in the Lake Huron Lake Trout Rehabilitation Guide and showed documented progress toward those milestones since the last State of Lake Huron in 1999.

Woldt and He stressed that much evidence indicates that Lake Huron may have turned a corner in its progress toward lake trout rehabilitation. Improved sea lamprey control due to treatment of the St. Mary's River, strong harvest control, and continued stocking have led to increases in spawning stock biomass and expansion of the population age structure in all main basin units in US waters. Since 1999, there is growing evidence of natural reproduction in agency sampling efforts, and Woldt stressed that agencies need to turn their attention toward investigating impediments to successful wild reproduction (e.g. exotic predation, EMS, contaminants, lack of forage, habitat degradation, spawning habitat selection) of Lake Huron lake trout stocks for rehabilitation efforts to progress.

The Service, State of Michigan, and other partner resource agencies around the lake have participated in lake trout rehabilitation efforts in Lake Huron since the 1970's. Rehabilitating Lake Huron lake trout stocks is consistent with the Service's goal of building and maintaining self-sustaining populations of native fish species under the "Aquatic Species Conservation and Management" priority of the Fisheries Program Vision for the Future.

## Lake Sturgeon

### **New Sampling Techniques Used to Collect Juvenile Lake Sturgeon in the St. Clair System**



*Submitted by James Boase  
Fishery Biologist*

With funding provided by DTE Energy biologists from Alpena FRO and Michigan DNR Lake St. Clair Research Station purchased and tested trammel nets and gillnets in the St. Clair System. Trammel nets have been successfully used by commercial fishers and biologists in large rivers like the Mississippi and Missouri. They have been used for many years to capture, virtually unharmed, a wide variety of species and sizes of fish.

Trammel nets can best be described as a small mesh gillnet sandwiched between two large mesh gillnets. However, unlike gillnets trammel nets do not typically gill the fish instead fish get caught in a pocket that is formed by the smaller inner mesh as they try to swim through. The trammel nets we used were 30 meters in length, had a 2.5 cm inch inner mesh surrounded by 20 cm outer panels. The nets can be fished in a number of ways such as anchoring or allowing the nets to drift with the current. Gill nets used in this survey were 120 meters in length and had a mesh size of 5.6 cm mesh size. With this pilot study we drifted the trammel nets in the river and used anchors while fishing the gillnets. We fished gillnets in the delta region of the river where water velocities were lower.

The goal of this demonstration effort was to collect juvenile lake sturgeon that were less than three years old. During the past decade efforts to collect young sturgeon in the St. Clair River have utilized setlines with smaller hooks. After nine years of sampling less than 25 juvenile lake sturgeon have been captured with no young-of-year lake sturgeon captured.

Our first attempts using trammel nets in August managed to capture only one adult lake sturgeon in 15 transects. We found that the net was susceptible to snagging on clusters of zebra mussels and other debris located on the river bottom. By the end of August a concurrent effort by researchers from Alpena FRO and USGS Great Lakes Science Center (GLSC) had completed a substrate survey of the St. Clair River using Side-scan sonar. The Side-scan information enabled biologists to avoid most snag hazards in a second survey with the trammel nets and as a result four lake sturgeon ages two and three were captured. Fishing in the delta region of the river resulted in the capture of three lake sturgeon ages zero, one and two.

Interestingly, the four lake sturgeon captured in the river were within 20 meters of a juvenile sturgeon that had previously been implanted with a sonic tag and had been located earlier on the same day. It is not fully understood if juvenile lake sturgeon move in schools or if limitations in certain habitat parameters cause juveniles to congregate together. Repeated attempts to recapture the implanted juvenile were unsuccessful. Capture of the implanted fish would have enabled biologist to check the health of the fish since its release in June 2005.

This sampling effort allowed researchers from various agencies to share information about different sampling techniques. Our goal is to continue working with our partners from the GLSC, Michigan DNR, along with corporate sponsors, to continue to test new sampling techniques in our effort to better understand the basic habitat needs of lake sturgeon in this system.

This collaborative effort provided an excellent opportunity to interact with biologists from other agencies and to explain the Service's mission and efforts to assist in management of Great Lakes fisheries. Specifically, information was provided about the efforts of the Service and its partners to rehabilitate native lake sturgeon populations in the Great Lakes and the role that the Fishery Resources Offices have in this endeavor. This project supports the "Partnerships and Accountability" and "Aquatic Species Conservation and Management" priorities of the Fisheries Program Vision for the Future.

## Temperature Depth Recorder Recovered From Lake Sturgeon



Photo—R.Purdy

*Submitted by James Boase  
Fishery Biologist*

On November 21, 2005, Fishery Biologist James Boase from Alpena FRO working with Biologist Ray Argyle from USGS Great Lakes Science Center in Ann Arbor Michigan were able to extract another temperature depth recorder from a lake sturgeon captured by Purdy Fisheries Ltd. In the spring of 2002 twenty, mostly adult lake sturgeon, were implanted with the recording

devices and released in southern Lake Huron. The procedure was repeated again in 2003 with twenty more lake sturgeon implanted. Since 2002 four lake sturgeon have been recaptured and all four recorders have been recovered and downloaded.

The research project is the work of biologists from Ashland FRO and USGS in Ann Arbor. Alpena's involvement has been to provide technical support first during implantation phase of the project and more recently during the recovery of the recorders. The recorders that were implanted in the lake sturgeon back in 2002 and 2003 have been collecting information about the temperature and depth of each fish as it moved freely around the Great Lakes. Batteries in the recorders were designed to record information for three years. During that active period the information about temperature and depth gets permanently stored in the memory of the recorder. Researchers anticipated the recovery of only 10% of the recorders and so far four recorders have been recovered. Information recovered from those four fish seems to indicate that lake sturgeon spend most of their time in relatively shallow areas of the Great Lakes.

In addition to each fish having a recorder, all of the fish are marked with two external Floy tags and an internal PIT tag. The purpose of the tags is to allow the fish to be identified if captured by a commercial or recreational angler. The Floy tags identify that there is a reward for capture of the fish and also provides a phone number and a number to identify the individual fish. The internal PIT tags provide a unique number but no contact information. It is injected under the skin of the fish and can only be read by an electronic reader. Three of the four lake sturgeon recovered have been captured by Purdy Fisheries. The latest fish captured was one of the juvenile fish implanted and not large enough for legal harvest. After the tag was extracted the fish was sutured and after a thirty minute recovery period in the raceway the fish was released in the headwaters of the St. Clair River. The fish was healthy having gained a few pounds and grown a few inches since its initial release in the spring of 2003.

This effort is just one example of the Service working with states, other federal agencies, and non government organizations to achieve common Great Lakes management objectives.



Maintaining these collaborative relationships allows for the most efficient use of limited human and fiscal resources, ultimately resulting in faster restoration of lake sturgeon in the Great Lakes.

This collaborative project provided an opportunity for the Service to expand its network of both governmental and non-governmental partners. Working with other governmental agencies and commercial fishers has been beneficial in aiding the ongoing lake sturgeon research that the Alpena FRO is currently involved with in the St. Clair River. Maintaining and the continued expansion of these networks is key to the success of the overall interagency effort in restoring lake sturgeon throughout the Great Lakes basin and is consistent with the Service Fisheries Program Vision for the Future priorities for “Aquatic Species Conservation and Management” and “Leadership in Science and Technology”.

## Lake Sturgeon Ageing



***Submitted by Adam Kowalski  
Fish and Wildlife Biologist***

During the month of February 2006, Biologist Adam Kowalski aged lake sturgeon fin rays collected by commercial fishers during their regular fishing seasons. These fishers help collect data from lake sturgeon incidentally caught in their trap nets. Fishers tag the lake sturgeon with tags supplied by the Alpena FRO and record data such as tag number, total length, fork length, girth, water depth, water temp., bottom type, and capture location. Fishers also remove the first pectoral fin

ray and send them to Kowalski for ageing.

Aging fin rays requires the ray to be cross sectioned at the base of the ray. This is done with an Isomet saw. The cross section is then mounted on a microscope slide using a mounting medium. Alpena FRO uses Image Pro Plus software which allows a digital camera connected to a dissecting scope to capture images of the cross section and display them on a computer screen for aging. Images are saved and cataloged by year in an archive file. In total, 46 lake sturgeon fin rays were collected and aged for the 2004 and 2005 fishing seasons. Ages and data collected from these lake sturgeon are entered into a database and included in an annual station report.

Commercial fishers have been helping us collected data on a species that is either threatened or endangered in 19 of 20 states of its original range. This collaborative effort is consistent with the “Aquatic Species Conservation and Management” and “Partnerships and Accountability” priorities of the Service Fisheries Program Vision for the Future.

## **Alpena FRO Participates in Monthly Radio Program with Congresswoman Miller**

*Submitted by Jerry McClain  
Fishery Biologist*

On March 29, 2006 Project Leader McClain participated in The Washington Connection, a monthly radio program hosted by Congresswoman Candice Miller (MI-10). McClain had been asked to participate in the show when he visited with Ms. Miller on March 9, 2006 during March Madness. The monthly radio program airs on local stations in Michigan Congressional Districts and updates citizens on Ms. Miller's Washington activities, as well as issues of interest to those communities in her district.

During the interview with the Congresswoman, McClain discussed lake sturgeon restoration efforts being directed by the Alpena FRO, reasons for the decline of the species and impediments to recovery. McClain discussed the sturgeon spawning site that has been discovered near the Blue Water Bridge in Port Huron and the importance of that site to remnant stocks in this region of the Great Lakes. McClain also provided an overview of the Service and the responsibilities of the Alpena FRO in Lake Huron and the St. Clair corridor. The interview was taped on March 29 and aired on April 1.

Interaction with Michigan congressional offices helps increase visibility of Service programs, enhances relationships with district and Washington staff persons and establishes points of contact for natural resources issues for which the Alpena FRO has federal responsibility. This effort is consistent with and supportive of the "Aquatic Species Conservation and Management", "Aquatic Habitat Conservation and Management", and "Public Use" priorities of the Service Fisheries Program Vision for the Future.

## **Second Year of Lake Sturgeon Survey Begins on the Saginaw River Watershed**



*Submitted by James Boase  
Fishery Biologist*

Fishery Biologists from Alpena FRO working with volunteers Larry Hess, Barry Pulaski, and Larry Dinsmore began sampling for lake sturgeon on the Saginaw River watershed during early April 2006. This project was funded by the National Fish and Wildlife Foundation and the Saginaw Bay Watershed Initiative Network with the primary objective of determining locations where lake sturgeon may be spawning in the

watershed. Potential lake sturgeon spawning sites have been identified below dams located on the Cass, Shiawassee and Tittabawassee rivers. Sampling gear has been placed below the dams to collect eggs from lake sturgeon and other species that are spawning at those sites. Eggs are collected and transported to the USGS laboratory in Ann Arbor where they are being hatched in incubation jars. Biologist Jeff Allen (USGS) has been overseeing the aquaculture portion of the study and is beginning to identify fish that have been hatching. Following the spring spawning survey we will begin sampling habitat parameters to determine if the system could support juvenile lake sturgeon. This effort, if successful, would be a major step for the rehabilitation of lake sturgeon in Lake Huron.

This effort provided a unique opportunity to create new partnerships with both governmental and non-governmental agencies and volunteers to achieve common Great Lakes management objectives. Maintaining these collaborative relationships allows for the most efficient use of limited human and fiscal resources. This project is consistent with the "Partnerships and Accountability", "Aquatic Species Conservation and Management", and "Leadership in Science and Technology" focus areas of the Fisheries Program Vision for the Future.

## **St. Mary River Lake Sturgeon Project**

*Submitted by Scott Koproski  
Fishery Biologist*

During the month of April 2006, Fishery Biologist Scott Koproski completed preparation for field work and initiated coordination activities for the St. Marys River Lake Sturgeon Project. The project is scheduled to begin in May and will continue until the end of August. Koproski was awarded a grant from the National Fish and Wildlife Foundation (NFWF) to assess lake sturgeon in the St. Marys River, the connecting waterway between lakes Superior and Huron. Partners on the project include Lake Superior State University, Bay Mills Indian Community, the Soo Area Sportsman, and eight volunteers all of which have donated their time and a vessel to this project.

Funding awarded from the NFWF will be used to capture and implant sonic telemetry tags in lake sturgeon utilizing the St. Marys River. Anecdotal information indicates that lake sturgeon were commonly encountered in the St. Marys River. However, very little is currently known about population size, available habitat, and spawning locations within this system. By capturing and following these fish we may be able to provide more definitive answers for researchers and managers. Without the help of the partners, volunteers, and the NFWF this project would not be possible.

This work is an example for Alpena FRO's commitment to the Service Fisheries Program Vision for the Future priorities of "Aquatic Species Conservation and Management", "Partnerships and Accountability", and "Cooperation with Native American Tribes".

## St. Marys River Lake Sturgeon Project



*Submitted by Scott Koproski  
Fishery Biologist*

On May 15, 2006, Fishery Biologist Scott Koproski traveled to Sault Ste. Marie, Michigan, to begin working on the St. Marys River lake sturgeon telemetry project. Biological Science Aid Meghan Kline began her appointment as well and she will be stationed in Sault Ste. Marie, Michigan, working on this project. This project is funded through the National Fish and Wildlife Foundation and partners include: Lake Superior State University, Bay Mills Indian Community, and the

Soo Area Sportsman.

Koproski and Kline began deploying set lines to capture lake sturgeon utilizing the St. Marys. A set line consists of twenty five baited hooks spaced 10 ft. apart on a 300 ft. line. The 300 ft. line has an anchor and buoy on each end. The set line is allowed to fish for either one or two nights. Over 50 set line lifts were made over the last three weeks of May. Three lake sturgeon were captured and two of these fish exceeded the 50 in. minimum length limit necessary for implanting the sonic telemetry tags. Set lines will continue to be fished through the month of June and tracking began with the first sonic tag implantation. By following these fish we hope to identify spawning locations within the St. Marys River or identify new tributaries that sturgeon are utilizing.

This work is an example of Alpena FRO's commitment to the following Fisheries Program Vision for the Future priorities: "Aquatic Species Conservation and Management", "Partnerships and Accountability", and "Cooperation with Native American Tribes".

## Lake Sturgeon Reef Project Presented at the 2006 IAGLR Meeting in Windsor, ON

*Submitted by James Boase  
Fishery Biologist*

On May 24, 2006 Fishery Biologist James Boase traveled to Windsor, Ontario to attend the 49<sup>th</sup> annual meeting for the International Association of Great Lakes Research. Boase was an invited speaker at the Detroit River International Wildlife Refuge Symposium and gave a presentation titled "Fish Response to Construction of an Artificial Lake Sturgeon Spawning Reef in the Detroit River" and was coauthor on four other talks at the meeting. All of the talks were focused on the recent research results by biologists from Alpena FRO, and our partners with the USGS Great Lakes Science Center, and Michigan DNR



Lake Erie Management Unit. Three of the talks focused on success of the artificial lake sturgeon spawning reef located at Bell Isle in the Detroit River. The remaining two talks addressed the near-shore fish communities in western Lake Erie and the discovery of whitefish spawning in the Detroit River which was the first documented occurrence in almost 90 years. Talks and highlights of the meeting can be accessed at <http://www.iaglr.org>.

Approximately 100 researchers and policy makers from the US and Canada attended the symposium. The symposium provided an excellent opportunity to demonstrate how Alpena FRO is working with state and federal biologists, recreational anglers, and commercial fishers from both Canada and the U.S. to better manage fisheries resources in the Huron Erie Corridor.

This meeting provided an excellent opportunity to explain to the research community, corporate groups and private citizens the Service's mission and efforts to restore native fish in the Great Lakes and how agencies managing species like lake sturgeon and whitefish must work together if restoration is going to be successful. The benefits of native species restoration was clearly defined and explained. The meeting was also an excellent outreach opportunity. This activity is consistent with and supportive of the "Partnerships and Accountability" and "Aquatic Species Conservation and Management" priorities of the Fisheries Program Vision for the Future.

## **St. Marys River Lake Sturgeon Telemetry Project a Success**



*Submitted by Scott Koproski  
Fishery Biologist*

Field work continued through July 2006 for the St. Marys River lake sturgeon project. Fishery Biologist Scott Koproski obtained funding through the National Fish and Wildlife Foundation to implant and track lake sturgeon within the St. Marys River. Lake Superior State University (LSSU), Bay Mills Indian Community, and the Soo Area Sportsman Club are partners on this project. The goal of this project was to capture adult lake sturgeon and surgically implant sonic

telemetry tags in adult fish and identify critical habitat within the St. Marys River. Funds obtained from the National Fish and Wildlife Foundation were used to purchase the necessary equipment and hire a student in the Service's Student Temporary Employment Program (STEP). Biological Science Aid Meghan Kline was selected as the STEP employee and began working on May 15. Kline has been overseeing and coordinating all field activities with partners and volunteers working on this project. In addition to the partners, we have had 30 different volunteers involved in this project. The volunteers have either worked on the Service's vessel during field activities or provided their vessel to complete that day.

Since the week of May 15 set-lines have been fished weekly in various reaches of the St. Marys River. To date, a total of 299 set lines have been lifted yielding 73 lake sturgeon. Basic biological data were recorded from all lake sturgeon encountered and 10 fish have had a sonic telemetry tag implanted. Lake sturgeon received a sonic telemetry tag if their total length exceeded 50 inches.

Several lake sturgeon captured in June and July exceeded the 50 inch minimum but did not receive a sonic telemetry tag due to elevated water temperatures. Once the water temperature exceeded 20 degrees Celsius all surgery ceased in order to minimize stress on these fish. Of the 10 fish that have had a sonic telemetry tag implanted, we have been able to track their movement on a regular basis during the summer.

Most of the fish have remained relatively close to the initial capture location. A few fish, however, have moved quite a distance within a few days. One fish was at large for several weeks, but LSSU staff were able to locate that fish about 5 miles down river from the initial capture location. That particular fish has since moved back up stream and has been found quite close to its initial capture location. Alpena FRO and LSSU staff will continue to track the implanted fish at least weekly until the river freezes. After the river opens up again next spring, we will begin looking for the fish again.

This project was funded for one year, however, additional funds are being sought to continue this important work. The battery life of the tags is four years. Hopefully, the implanted fish will lead us to spawning habitat within the St. Marys River in subsequent years. If continued funding is obtained we plan on implanting up to 10 more fish next season.

This work is an example of Alpena's commitment to the following Fisheries Program Vision for the Future priorities: "Aquatic Species Conservation and Management", "Partnerships and Accountability", and "Cooperation with Native American Tribes".

## Lake Whitefish

### **Alpena FRO Tags Lake Whitefish Again (Year 2 of 3)**



*Submitted by Aaron Woldt  
Fishery Biologist*

From November 8 to 11, 2006 staff from the Alpena Fisheries Resource Office (FRO) participated in a USFWS Restoration Act funded Lake Huron lake whitefish distribution study. Service staff involved included Treaty Unit Coordinator Aaron Woldt, Project Leader Jerry McClain, Fishery Biologists Adam Kowalski, Scott Koproski, Susan Wells, Jim Boase, and Anjie Bowen, and Fish and Wildlife Biologist Heather Enterline. Staff conducted all tagging operations on the commercial trap-net boat the Blonnie W operated by

Jim Presau Fisheries.

The goals of this study are to determine the spatial distribution and movement patterns of 8 selected lake whitefish stocks in Lake Huron and to determine the contribution of each stock to commercial fishery yields. The 8 stocks selected for this study are Detour, Alpena (Middle Island & Thunder Bay), Saginaw Bay, Burnt Island, South Bay mouth, the Fishing Islands, Douglas Point, and Sarnia. From 2004 to 2006 1,500 lake whitefish will be tagged annually at each of the sites, except for Alpena and the Fishing Islands where 3,000 fish will be tagged annually at each site. In all, 7 state, federal, tribal, and provincial partner agencies will be participating in this study. In 2004, study partners tagged and released a total of 12,520 lake whitefish in Lake Huron. The Service tagged 1,481 lake whitefish in 2004. To date, approximately 350 tagged lake whitefish have been harvested and reported by Lake Huron fishers.

In 2005, Service staff successfully Floy tagged and released 1,540 lake whitefish near Middle Island. Service staff also tagged and released an incidentally caught lake sturgeon as part of an ongoing Lake Huron lake sturgeon monitoring study. Michigan DNR staff tagged approximately 1,500 lake whitefish in Thunder Bay in November, 2005. Tagged fish were measured for length, checked for lamprey wounds, sexed, assessed for maturity, scale sampled for ageing purposes, fin clipped, and released. A random subset of fish were also detained shortly prior to release to measure short term tag retention and handling mortality. Approximately 200 fish were lethally sampled and processed as well.

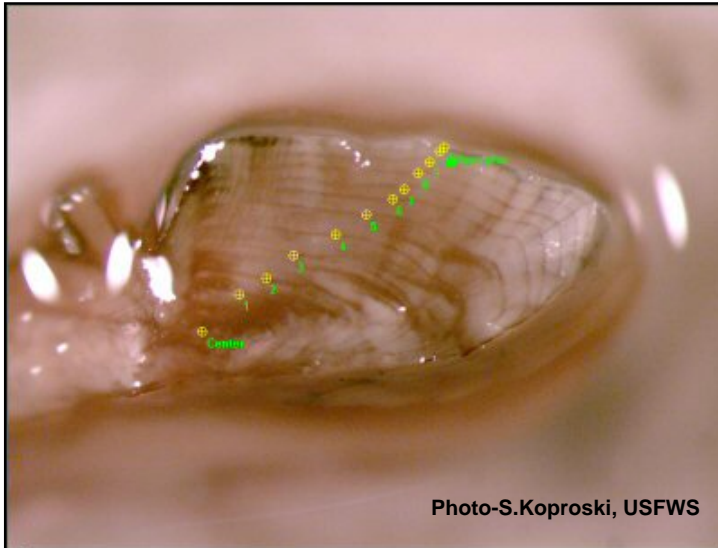
Data from this study will be entered into a common database maintained by the Alpena FRO. A combined database with all 2004 data was built by Woldt and distributed to study partners in November. Combined study data, including 2005 tagging, will be distributed to study partners early in 2006.

Studying the spatial distribution and movement patterns of lake whitefish stocks will allow managers to determine if the borders of current management units are biologically meaningful and to determine the contribution of each stock to the commercial fishery. This will allow for better harvest management and protection of lake whitefish stocks. This outcome is consistent with the Service's goal of maintaining self-sustaining populations of native fish species under the "Aquatic Species Conservation and Management" priority of the Fisheries Program Vision for the Future.

## **Lake Whitefish Age Determination**

*Submitted by Scott Koproski  
Fishery Biologist*

During the month of January 2006, Fishery Biologist Scott Koproski finished aging lake whitefish otolith samples collected during the 2004 and 2005 distribution study. This three-year study is funded through the Great Lakes Fish and Wildlife Restoration Act and involves the collaboration of seven agencies for the tagging of whitefish at eight Lake Huron main basin sites each year. The objective of this study is to delineate the spawning stocks of lake whitefish in Lake Huron. At each location 1500-3000 lake whitefish will have a Floy Tag inserted, will be measured to the nearest millimeter, and scales will be removed for age determination. In



addition to the tagged fish, 50 male and 50 female lake whitefish will be sacrificed daily for more extensive data collection. Biological data collection for these 100 fish includes length, weight, lamprey wounding, visceral fat indexing, sex, maturity and removal of age structures (scales, otoliths, and fin rays).

Koproski used the “crack and burn” technique to identify annuli present within each otolith. When this technique is used, two distinct growth patterns can be identified: broad

summer growth and narrow winter growth. By counting the bands of winter growth, age estimates can be obtained from the otoliths. A total of 500 fish were aged using this technique.

This work is an example of Alpena FRO’s commitment to the Service Fisheries Program Vision for the Future priorities of “Aquatic Species Conservation and Management”, “Partnerships and Accountability”, and “Cooperation with Native American Tribes”.

## Aquatic Nuisance Species

### **Fall Netting Targeting Eurasian Ruffe – Turns Up None**



*Submitted by Anjanette Bowen  
Fishery Biologist*

An annual fall netting survey targeting Eurasian ruffe (ruffe) in the only known location in Lake Huron, the Thunder Bay River - has caught none for the 3rd year in a row. The Eurasian ruffe is an invasive fish species that was first found in the Great Lakes from Lake Superior in the 1980's. They are believed to have been accidentally transported to the Great Lakes from their native land of Eurasia in the ballast water of an ocean going ship. Ruffe were found in Lake Huron in the

Thunder Bay River in Alpena, Michigan in 1995. Ruffe were also found in Lake Michigan in 2002.



The abundance of ruffe in the Thunder Bay River slowly increased until their numbers reached an all time high in 1999 when they were the most abundant bottom dwelling fish captured during fall trawling surveys. In 2002 the Alpena FRO initiated a spring netting survey to remove adult spawning ruffe from the river prior to spawning. Ruffe were captured in the spring and fall of 2002 and spring of 2003 but have not been captured since.

It is believed that Eurasian ruffe may have become extirpated from the Thunder Bay area and Lake Huron based on survey findings from 2003 to present. The possible extirpation of ruffe is a remarkable outcome considering established invasive species generally become a part of the fish community into the future. Invasive species monitoring is consistent with the "Aquatic Species Conservation and Management" priority of the Fisheries Program Vision for the Future.

## **Final Report Provided on Study to Examine Round Goby Predation on Lake Trout Eggs**



*Submitted by Anjanette Bowen  
Fishery Biologist*

Alpena FRO submitted a final report to the USEPA Great Lakes National Program Office (GLNPO) on a study conducted to examine predation of invasive round goby on lake trout eggs at a historical spawning reef in northern Lake Huron. The goby is likely a threat to lake trout restoration efforts due to their widespread abundance and predatory nature. Trap-lines and

set-lines were used to catch round goby from Mischley Reef in Thunder Bay from May to October in 2002 and 2003 and in October 2004. Diets were documented for 421 round goby collected in October. Lake trout eggs were detected in the diet of round goby captured from the reef each year, but they were uncommon. Dreissenids were the most abundant prey item found. Although lake trout eggs comprised a small portion of the diet of round goby captured during this study, we continue to believe that round goby may impact lake trout reproduction and that more information is needed. Submission of this final report completes the Alpena FRO requirements for this GLNPO grant.

The Service is committed to promoting healthy native fish communities by combating invasive species within the Great Lakes. This project addresses the "Aquatic Species Conservation and Management" and "Partnerships and Accountability" priorities of the Fisheries Program Vision for the Future.

## Alpena FRO Prepares for 2006 Aquatic Nuisance Species Sampling Season

*Submitted by Anjanette Bowen  
Fishery Biologist*

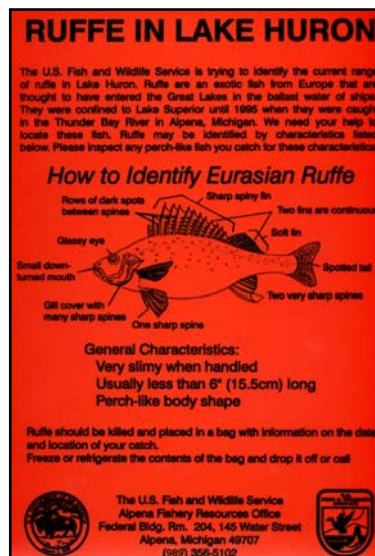
During the month of March 2006, Fishery Biologist Bowen made preparations for the upcoming 2006 Aquatic Nuisance Species (ANS) sampling season. Sampling gear was inspected and inventoried, and repairs were made to damaged nets.

Small mesh gillnets (1.5 inch mesh, 6 ft x 100 ft) are used to control the Eurasian ruffe (ruffe), an invasive European percid, population in the Thunder Bay River, Lake Huron during spring spawning. Efforts to control the ruffe will begin in early April. Gillnets were repaired by Biologists Kowalski and Koproski. All necessary equipment was assembled for the upcoming effort.

Small mesh bottom trawls (1.5 inch mesh, 16 ft trawls) are used to survey for new populations of ANS in U.S. waters of Lake Huron and the St. Marys River during the fall. Bottom trawls sample round goby (goby), ruffe, and other invasive species including white perch, threespine stickleback and others. The bottom dwelling native fish community is sampled as well. Bowen mended trawls damaged during the 2005 sampling season and made preparations to purchase replacement gear for those that could not be repaired. Efforts to monitor for new ANS populations in U.S. waters of the St. Marys River and Lake Huron will begin in September.

Activities to combat ANS in the Great Lakes benefits native fish species and supports the Service Fisheries Program Vision for the Future priority for "Aquatic Species Conservation and Management".

## Eurasian Ruffe Removal Effort Conducted in Thunder Bay River, Lake Huron



*Submitted by Anjanette Bowen  
Fishery Biologist*

During April 2006, Alpena FRO conducted efforts to detect and remove Eurasian ruffe (ruffe) from the only known Lake Huron population located in the Thunder Bay River near Alpena in northeastern Michigan. This annual effort was initiated in 2002 to remove adult ruffe prior to spawning. Small mesh gillnets were fished at 3 to 5 index locations and targeted water temperatures and timing of when ruffe were captured in past years.

In 2006, no ruffe were not captured following a total of 44 nights effort. Ruffe have not been captured from Thunder Bay since 2003. Alpena FRO staff including Heather Rawlings, Susan Wells, Aaron Woldt, Scott Koproski, Adam Kowalski, Jerry McClain, and Anjanette Bowen participated in this project.

Ruffe are an aquatic invasive species native to Eurasia that were accidentally introduced into the Great Lakes via ballast water from an ocean-going vessel. They are related to yellow perch but do not attain a size that is desirable for sportfishing harvest and consumption and are thought to compete with native species for food and habitat resources. Ruffe were designated an aquatic nuisance species in 1992 by the Aquatic Nuisance Species Task Force. Ruffe were first discovered in Lake Huron at Thunder Bay in 1995.

Efforts to control and monitor invasive species provides benefit to native species. This project addresses the Service Fisheries Program Vision for the Future priority for "Aquatic Species Conservation and Management".

## **Lake Huron and St. Marys River Ports Surveyed for New Populations of Invasive Species**



*Submitted by Anjanette Bowen  
Fishery Biologist*

Alpena FRO conducted surveillance for new populations of invasive species and documented the existing fish community at shipping ports and rivers in northwestern Lake Huron and the St. Marys River during September and October 2006(9/19-10/04). A total of 12 locations including 8 sites in Lake Huron and 4 sites in the St. Marys River were surveyed with bottom trawling gear. A target of 30 minutes of effort was conducted at each sample site.

No new populations of invasive species were detected. Eurasian ruffe (ruffe) were not found at any locations and round goby (goby) continue to persist at Lake Huron locations. Neither ruffe nor goby have been found in the St. Marys River to date.

A total of 26 species were captured including 24 species in Lake Huron and 15 species in the St. Marys River during 215 and 110 minutes of effort respectively. Bottom water temperatures during the survey ranged from 9.1 - 19.4°C, and averaged 14.2°C in Lake Huron and 10.9°C in the St. Marys River.

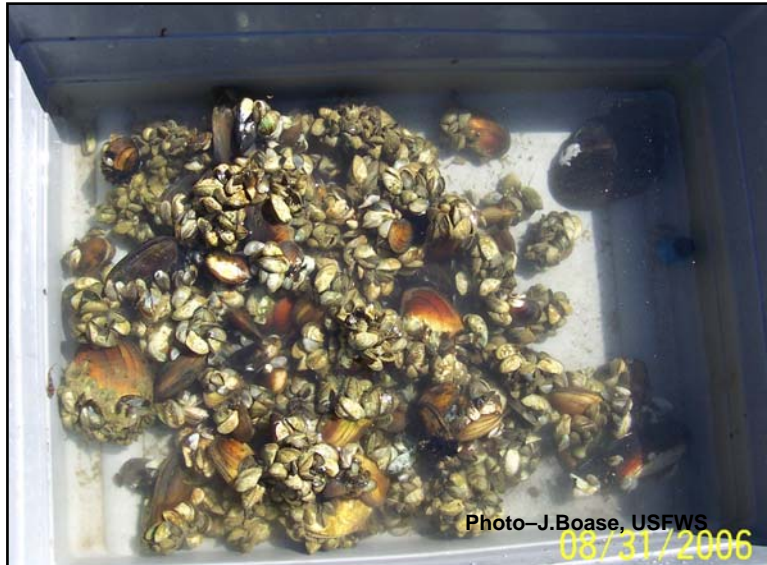
Biologist Bowen coordinated survey efforts with assistance from Biologists Kowalski, Rawlings and Boase. We are grateful to Jordan River National Fish Hatchery Fishery Biologist John Johnston who also provided needed assistance.

Alpena FRO is committed to the conservation of native species through the monitoring and control of aquatic nuisance species. This effort is consistent with the Service Fisheries Program Vision for the Future priority for "Aquatic Species Conservation and Management".



## Other Activities

### **Biologists from Multiple Agencies Meet to Discuss Mussel Recovery Efforts in the Huron Erie Corridor at Walpole Island**



*Submitted by James Boase  
Fishery Biologist*

Biologists from the Michigan Department of Natural Resources (MDNR), Walpole Island First Nation (WIFN), USGS Great Lakes Science Center (GLSC), DTE Energy, Genoa National Fish Hatchery (GNFH), and Alpena FRO met on September 1, 2006 at the Walpole Island Heritage Center. The purpose of the gathering was to bring together biologists that have been working on Great Lakes mussel issues especially those affecting the

Huron Erie Corridor (HEC) and to provide a forum to discuss recent finding and provide direction for future rehabilitation efforts. Resource managers from WIFN have been leading the efforts in establishing refuge areas within the St. Clair River Delta with the focus of maintaining and protecting the remaining native mussel populations on the Delta. The research leading up to the establishment of the refuge areas was largely a part of the cooperation between WIFN, Environment Canada, GLSC, and DTE Energy. More recently the USFWS and MDNR have joined in on these efforts.

At the meeting Mussel Biologist Tony Brady from the GNFH presented recent innovative propagation techniques that have been successfully used in supplemental stocking or the reintroduction of federally listed mussels back into tributaries of the Mississippi River. Similar to the populations on the Mississippi River System the populations on the St. Clair Delta have been declining or have been extirpated from many areas due to the negative effects of the exotic zebra mussel. Since the introduction of the exotic zebra mussel in the 1980's native mussels have been steadily declining or have been eliminated from most areas of the Great Lakes. Although zebra mussels do not directly parasitize native mussels they do attach themselves in large numbers to the shells of the native mussels thereby preventing the mussels from foraging, reproducing and dispersing their progeny.

Historical research indicates that the highest densities and greatest diversity of native mussels were found in deeper locations in Lake St. Clair while shallow bays located in areas such as the St. Clair River Delta were considered marginal habitat. Today only the areas that were once considered marginal habitat have a surviving population of native mussels.



The St. Clair River Delta is the largest delta system in the Great Lakes forming an international border between the United States and Canada. The St. Clair River splits into three main channels along with multiple smaller channels as it moves through the delta. On the U.S. side the delta has been intensively managed and altered with both residential and commercial use dominating most upland areas. Steel sheet pilings separate most of the interface areas between upland areas and the river. Canals have been dredged connecting once isolated bays to most channels.

In Canadian waters, WIFN has maintained most of the natural integrity of the delta. Most channels have native emergent plant species which slow the flow of water into them or act as buffers separating upland areas from the river. Numerous isolated bays having a limited access point from the river or from Lake St. Clair are still intact and have not been breached by man-made channels. Travel within the shallow water bays is restricted and is not impacted by heavy recreational boat traffic unlike most location on the U.S. side of the delta.

The differences in land use practices between the U.S. and Canadian waters of the delta may help partially explain why preliminary results indicate that native mussels are doing better in Canadian than in U.S. waters. Low boat traffic in isolated shallow bays results in less mussels being damaged by props or being dislodged. Bays that have not been breached by canals do not receive a continuous introduction of new zebra mussels, and as a result native mussels have few attached zebra mussels. In general most of the bays sampled on Walpole Island were relatively deeper than what was found on the U.S. side.

Researchers with EC and WIFN have taken some of the first steps by identifying refuge areas in Canadian waters and have been successful at moving native mussels from areas of high zebra infestation to those locations. What has not been determined is if all life history requirements will be fulfilled with those mussels that are placed in those refuge areas. Because most native mussels have specific host fish species needed for survival of their progeny the next question that needs to be answered is if the fish community has changed or if spatially the mussels will never be in contact with their host fish. Perhaps some of the propagation techniques that were presented at this recent meeting will help achieve the goals of rehabilitating native mussel populations in the Great Lakes. If we are to maintain a population of native mussels some innovative and intensive approaches to management will have to be considered. The USFWS and its partners are planning to continue to identify other potential refuge areas in both U.S. and Canadian waters and will also continue working to identify innovative management techniques.

This joint research project provided an excellent opportunity to interact with biologists from other agencies and to explain the Service's mission and efforts to manage resources in the Great Lakes. Specifically, information was provided about the efforts of the Service and its partners to rehabilitate native mussel populations in the Great Lakes and the role that the Fishery Resources Offices and the National Fish Hatcheries have in this endeavor. This outreach event supports the "Partnerships and Accountability" and "Aquatic Species Conservation and Management" priorities of the Fisheries Program Vision for the Future.

The **Alpena Fishery Resources Office (FRO)** is located in Alpena, Michigan and works to meet U.S. Fish and Wildlife Service Fishery and Ecosystem goals within Lake Huron, Western Lake Erie, and connecting waters of the St. Marys River, St. Clair River, and Detroit River. Activities include Aquatic Species Conservation and Management, Aquatic Habitat Conservation and Management, Cooperation with Native Americans, Leadership in Science and Technology, Partnerships and Accountability, Public Use, and Workforce Management – all of which are conducted in alignment with the Service Fisheries Program Vision for the Future. The station is one of many field offices located within Region 3, the Great Lakes Big Rivers Region. For more information about Alpena FRO programs and activities visit our web site located at <http://www.fws.gov/midwest/alpena/>.

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